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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,553	07/21/2003	Akira Tanaka	500.42921X00	3913
20457	7590	02/06/2006	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			ONEILL, KARIE AMBER	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/622,553	Applicant(s) TANAKA ET AL.	
	Examiner Karie O'Neill	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 5, 8 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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With respect to Claim 1, it is unclear if the electronic device uses a fuel cell or if it comprises a fuel cell which would make the fuel cell an integral part of the electronic device.

With respect to Claim 5, the claim recites "a fuel tank which supplies electric power from said power generator panel for at least ten seconds or longer". The function of a fuel tank providing electric power is not possible and it is unclear to the examiner what is meant by this recitation. It is also unclear in what form the electric power is being supplied for ten seconds or longer. Is this power in a steady state of operation or is any amount of power appropriate?

With respect to Claims 8 and 12, it is unclear what the "distance between said power generator panel and said electronic device" is considered to be.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-3, 5, and 12-15 are rejected under 35 U.S.C. 102(a) as being anticipated by Nakakubo et al. (WO 03/049223) as evidenced by use of translation of Nakakubo et al. (US 2005/0008918 A1).

As best understood with respect to Claim 1 and with respect to Claims 2-3 and 15, Nakakubo et al. discloses in the Abstract and Figure 1, a fuel cell system which is mounted and used for an electronic device and comprises a cell unit (1), comprising one or more MEA fuel cells (14), located in between two opposite faces of a thin housing (2) having a substantially parallelepiped shape (power generator panel) having openings (7) which are air vents for taking in the open air and are provided in a top face (82), a bottom face (81), and long side faces (84a and 84b) of the housing. The plurality of membrane electrode assemblies are stacked together (paragraph 0015) so that the fuel electrodes face each other and the oxidizer electrodes face each other by reversing on kind of the fuel cells (paragraph 0036). The stacking arrangement allows the MEA's to make up the walls of the fuel cell assembly and to be exposed to air from the air vents of the housing.

As best understood, with respect to Claim 5, Nakakubo et al. discloses in paragraph 0022 and Figure 1, a fuel tank unit (3) for storing and providing fuel to the cell unit wherein it is located in between two opposite faces of the housing (2).

With respect to Claim 12, Nakakubo et al. discloses the electronic device using a fuel cell of Claim 1, but does not disclose expressly wherein the distance between said power generator panel and said electronic device differs between the power supply state and the power stop state of the fuel cell. It is well known to one of

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ordinary skill in the art that as a fuel cell heats up in the power supply state, it will expand and fill in more space within an enclosure or between the power generator panel and the electronic device, than it will when it is cool or cooling down in the power stop state.

With respect to Claims 13 and 14, in consideration of Claim 12 above, Nakakubo et al. discloses in paragraph 0023, a fuel tank unit, fuel feed unit and cell unit being located within two opposite faces of the housing and, in paragraph 0034, a fuel cell system comprising a plurality of cells within the housing wherein the fuel electrodes face one another and a common fuel flow path is provided between the electrodes. He also discloses in paragraph 0124, air being taken in through air vents in the housing which is necessary so as to generate electricity efficiently and provide air over a large surface area of the fuel cell system in order to generate as much electricity as possible.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 6-7, 9-10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakakubo et al. (WO 03/049223) as evidenced by use of translation of Nakakubo et al. (US 2005/0008918 A1) in view of Hayashi et al. (US 2002/0055029 A1).

Nakakubo et al. discloses the electronic device using a fuel cell of Claim 1 above, but does not disclose expressly wherein the electric device has a display section, and the power generator panel is disposed facing said display section, and the power generator panel is mounted to the device through a supporting structure and movable relative to the electronic device, wherein there is an empty space between said power generator panel and said electronic device, and wherein said power generator panel is prolonged in the longitudinal direction of the electronic device cover member. He also does not disclose fuel being supplied to said power generator panel when the power supply to the electronic device is turned on, and the fuel supply being stopped when the power supply to the electronic device is turned off.

Hayashi et al. discloses in Figure 1, the fuel assembly panel (7) being placed in the housing of the display unit (3) so that a large area for the fuel cell assembly panel can be ensured and, according to the notebook PC embodiment of the reference, it is easy to mount a panel type assembly in the display unit of the notebook PC when the fuel cell assembly panel has a size similar to that of the display unit of the notebook PC (paragraph 0112). He also discloses in paragraph 0059, a gap between the housing and the fuel cell assembly when the device is operating. Figure 7, shows the power ON sequence (51), operation sequence (52) and power OFF sequence (53), which are to

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be executed when the power switch is turned on. If the power switch is turned ON, the notebook PC is started in the fuel cell mode and provides fuel to the power generator panel (paragraph 0103) and when the switch is OFF the fuel cell is in neutral and is not supplying fuel to the panel (paragraph 0102).

Nakakubo et al. and Hayashi et al. are analogous art because they are from the same field of endeavor, fuel cells. At the time of the invention it would have been obvious to one of ordinary skill in the art to assemble the fuel cell power generator panel of Nakakubo et al. in the display section of the Hayashi et al. reference and to make it mountable and the size of the display unit and provide a gap between the housing and generator panel for the purpose of ensuring a large enough area to house the power generator panel and to be able to provide proper ventilation to the panel as well as create an area of air that would form a heat insulating layer. It also would have been obvious to use a power ON and power OFF sequence such as that of the Hayashi et al. reference in order to control the fuel flow to the generator panel.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakakubo et al. (WO 03/049223) as evidenced by use of translation of Nakakubo et al. (US 2005/0008918 A1) in view of Burokas et al. (US 6,954,852 B2).

Nakakubo et al. discloses the electronic device of Claim 1 but does not disclose expressly the wherein said electronic device includes an information electronic device comprising a main body having a semiconductor for arithmetic operation and a cover member for covering at least a part of said main body, wherein said fuel cell is switched

over between a power supply state and a power stop state in conjunction with open/close action of said cover member.

Burokas et al. discloses a mid-range computer comprised of one or more central processing units, a hard drive, and random access memory coupled together by one or more busses (column 4 lines 65-67) and being configured to power off when the lid is closed or after a period of inactivity and then restore itself when the lid is re-opened (column 2 lines 1-3).

Nakakubo et al and Burokas et al. are analogous art because they are from the same field of endeavor, electronic devices. At the time of the invention it would have been obvious to one of ordinary skill in the art to use the electronic device of Nakakubo et al. to switch between a power supply state and power stop state in conjunction with opening and closing the lid of the electronic device described in the Burokas et al. reference. The motivation for doing so would be to conserve electric power during the power stop state and for returning to the power supply state more quickly than if all of the components of the electronic device were to be shut down completely (Burokas column 2 lines 5-7).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakakubo et al. (WO 03/049223) as evidenced by use of translation of Nakakubo et al. (US 2005/0008918 A1) in view of Gomez (US 2004/0096718 A1).

Nakakubo et al. discloses the electronic device of Claim 1 above but does not disclose expressly wherein the power generator panel is accordion-folded.

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Gomez discloses in Figures 6A-6C, folded fuel cell elements installed with one another creating an accordion shape.

Nakakubo et al. and Gomez are analogous art because they are from the same field of endeavor, fuel cells. At the time of the invention it would have been obvious to one of ordinary skill in the art to accordion-fold the fuel cell elements of Nakakubo et al. in order to increase the total surface area of the electrodes within a given space (Gomez paragraph 0098).

Claims 1-2, 4-7, 9-10, 12-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. (US 2002/0055029 A1).

Hayashi et al. discloses in Figures 1 and 2, an electric device using a fuel cell, said fuel cell having a power generator panel or a fuel cell assembly panel (7), wherein said power generator panel takes in air through the air inlet (41A) formed in the lower portion of the housing (30). He also discloses the fuel cell assembly panel being arranged in display unit, which is mounted with hinges to the electronic apparatus and is easily detachable (paragraph 0017). The fuel cell assembly panel is housed in the display unit (3) so that a large area for the fuel cell assembly panel can be ensured and, according to the notebook PC embodiment of the reference, it is easy to mount a panel type assembly in the display unit of the notebook PC when the fuel cell assembly panel has a size similar to that of the display unit of the notebook PC (paragraph 0112). A fuel cartridge is mounted on the upper portion of the display unit so as to serve to supply methanol as fuel to the fuel supply channel (paragraph 0060). He also discloses

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in paragraphs 0059 and 0064-0065, a gap between the housing or shield (32) and the fuel cell assembly when the device is operating. Figure 7, shows the power ON sequence (51), operation sequence (52) and power OFF sequence (53), which are to be executed when the power switch is turned on. If the power switch is turned ON, the notebook PC is started in the fuel cell mode and provides fuel to the power generator panel (paragraph 0103) and when the switch is OFF the fuel cell is in neutral and is not supplying fuel to the panel (paragraph 0102).

Hayashi et al. does not expressly disclose the electronic device using a fuel cell as having a power generator panel or fuel cell assembly panel taking in air through at least two wall surfaces, one wall surface and the other wall surface being opposite to one another and the distance between said power generator panel and said electronic device differing between the power supply state and the power stop state of the fuel cell. However, it is obvious to one of ordinary skill in the art to have more than one air vent opening for air to enter the fuel cell assembly panel so as to be able to provide air to a larger surface area in a shorter amount of time and increase the electrical output of the system. It is also well known to one of ordinary skill in the art that as a fuel cell heats up in the power supply state, it will expand and fill in more space within an enclosure or between the power generator panel and the electronic device, than it will when it is cool or cooling down in the power stop state.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571) 272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KAO


MICHAEL BARR
SUPERVISORY PATENT EXAMINER